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**DEC 17 2008**

**IN THE UNITED STATES  
PATENT AND TRADEMARK OFFICE**

Attorney Docket No.: **Google-44 (GP-096-00-US)**

Appl. No.: **10/750,363**

Applicants/Appellant: **Krishna BHARAT, et al.**

Filed: **December 31, 2003**

Title: **GENERATING USER INFORMATION FOR USE IN TARGETED  
ADVERTISING**

TC/A.U.: **3621**

Examiner: **Evens J. Augustin**

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
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S I R:

**APPEAL BRIEF**

Further to the Notice of Appeal filed on July 17, 2008, which set a period for response to expire on September 17, 2008, that period being extended three months to expire on December 17, 2008, the appellant requests that the Board reverse all outstanding grounds of rejection in view of the following.

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**I. Real Party In Interest**

The real party in interest is Google, Inc. An assignment of the above-referenced patent application from the inventors to Google, Inc. was recorded in the Patent Office starting at Frame 0289 of Reel 015479.

**II. Related Appeals and Interference**

There are no related appeals or interferences.

**III. Status of Claims**

Claims 1, 3, 5-26, 33, 35, 37-58, 65 and 66 are pending.

Claims 2, 4, 27-32, 34, 36, 59-64, and 67-76 are canceled.

Claims 1, 3, 5-33 (should be 5-26 and 33), 35 and 37-66 (should be 37-58, 65 and 66) are rejected. More specifically, claims 1, 7, 14, 33, 39 and 46 are rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. Claims 1, 3, 5-33 (should be 5-26 and 33), 35 and 37-66 (should be 37-58, 65 and 66) stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,754,939 ("the Herz patent") in view of U.S. Patent No. 5,724,567 ("the Rose patent").

The foregoing rejections of claims 1, 3, 5-33 (should be 5-26 and 33), 35 and 37-66 (should be 37-58, 65 and 66) are appealed.

#### IV. Status of Amendments

There have been no amendments subsequent to the final Office Action (Paper No. 20080413).

#### V. Summary of the Claimed Subject Matter

Generally, embodiments consistent with the claimed invention "increase the relevancy of ads served for some user request, such as a search query or a document request for example, to the user that submitted the request." (Page 4, lines 16-18 of the present application) To this end, embodiments consistent with the claimed invention may be used (1) to determine user profile information ("UPI") for users to which the ads are served (See, for example, independent claims 1, 7, 33 and 39, addressed below.), and/or (2) to generate user profile information for documents with which the ads are served (See, for example, independent claims 14 and 46, addressed below.). Such user profile information may then be used to control the serving of the ads.

Independent 1 recites a computer-implemented method for **determining user profile information for a user**, the computer-implemented method comprising:

- a) determining initial user profile information for the user using information included in past search queries submitted to a search engine by the user, wherein such information is independent of documents returned as search results to the past search queries (This is supported, for example, by 710 of Figure 7, page 5, lines 11-13, page 23, lines 9-14, Figure 9, page 23, line 28 through page 24, line 2 and page 24, lines 7-20.);

- b) inferring user profile information for the user (This is supported, for example, by 720 of Figure 7, page 23, lines 14-16 and page 24, line 21 through page 25, line 18.);
- c) determining the user profile information for the user using both the initial user profile information and the inferred user profile information (This is supported, for example, by 730 of Figure 7, page 23, lines 16 and 17, Figures 10 and 11 and page 25, line 26 through page 26, line 18.); and
- d) controlling the serving of an advertisement to the user using the determined user profile information (This is supported, for example, by 230, 235 and 250 of Figure 2, page 1, lines 6-10, page 5, lines 1-16, page 7, lines 8-10, page 12, lines 1-7 and 19-21, page 17, lines 8-10 and page 19, line 1 through page 20, line 30.).

Corresponding independent apparatus claim 33 recites corresponding means for performing the acts of determining, inferring, determining and controlling recited in the method of independent claim 1. In addition to the support for the corresponding method acts cited above, the means are supported, for example, by Figure 12, and page 26, line 20 through page 27, line 28.

Independent claim 7 recites a computer-implemented method for **determining user profile information for a user**, the computer-implemented method comprising:

- a) determining initial user profile information for the user (This is supported, for example, by 710 of Figure 7, page 5, lines 11-13, page 23, lines 9-14, Figure 9, page

23, line 28 through page 24, line 2 and page 24, lines 7-20.);

b) inferring user profile information for the user (This is supported, for example, by 720 of Figure 7, page 23, lines 14-16 and page 24, line 21 through page 25, line 18.);

c) determining the user profile information for the user using both the initial user profile information and the inferred user profile information (This is supported, for example, by 730 of Figure 7, page 23, lines 16 and 17, Figures 10 and 11 and page 25, line 26 through page 26, line 18.); and

d) controlling the serving of an advertisement to the user using the determined user profile information (This is supported, for example, by 230, 235 and 250 of Figure 2, page 1, lines 6-10, page 5, lines 1-16, page 7, lines 8-10, page 12, lines 1-7 and 19-21, page 17, lines 8-10 and page 19, line 1 through page 20, line 30.),

wherein the act of inferring user profile information for the user includes

i) defining a node for each of a number of documents and the user, wherein each node represents a particular one of the number of documents or the user (This is supported, for example, by Figure 10, 1110 of Figure 11 and page 24, line 27 through page 25, line 25.),

ii) adding edges between nodes if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes (This is supported, for example, by Figure 10, 1120 of Figure 11 and page 23, line 27 through page 25, line 25.) and

iii) inferring user profile information for the user using a topology of the graph and user profile information of other documents (This is supported, for example, by page 25, line 26 through page 26, line 18.)

Corresponding independent apparatus claim 39 recites corresponding means for performing the acts of determining, inferring, determining and controlling recited in the method of independent claim 7. In addition to the support for the corresponding method acts cited above, the means are supported, for example, by Figure 12 and page 26, line 20 through page 27, line 28.

Independent claim 14 recites a computer-implemented method for ***determining user profile information for a document***, the computer-implemented method comprising:

- a) determining initial user profile information for the document (This is supported, for example, by 610 of Figure 6, page 22, line 29 through page 23, line 1, Figure 8 and page 23, lines 22-27.);
- b) inferring user profile information for the document (This is supported, for example, by 620 of Figure 6, page 23, lines 1-3 and page 24, line 21 through page 25, line 25.);
- c) determining the user profile information for the document using both the initial user profile information and the inferred user profile information (This is supported, for example, by 630 of Figure 6 and page 23, lines 3 and 4.);

- d) associating with the document, the determined user profile information for the document (This is supported, for example by page 17, lines 2-4.);
- e) storing the association of the document with the determined user profile information for the document (This is supported, for example by Figure 4, page 17, line 17 through page 18, line 23, 1220 of Figure 12, page 7, lines 1-4 and page 26, line 22 through page 27, line 28.); and
- f) controlling the serving of an advertisement with the document using the determined user profile information for the document stored in association with the document (This is supported, for example, by 230, 235 and 250 of Figure 2, page 1, lines 6-10, page 5, lines 1-16, page 7, lines 8-10, page 12, lines 1-7 and 19-21, page 17, lines 8-10 and page 19, line 1 through page 20, line 30.).

Corresponding independent apparatus claim 46 recites corresponding means for performing the acts of determining, inferring, determining, associating, storing and controlling recited in the method of independent claim 14. In addition to the support for the corresponding method acts cited above, the means are supported, for example, by Figure 12 and page 26, line 20 through page 27, line 28.

Separately argued dependent claim 52 recites that the means for inferring user profile information for the document include means for

- i) defining a node for each of a number of documents and for each of a number of users (This is supported, for example, by Figure 10, 1110 of Figure 11 and page 24, line 27 through page 25, line 25.),

ii) adding edges between nodes if there is an association between the nodes to define a graph (This is supported, for example, by Figure 10, 1120 of Figure 11 and page 23, line 27 through page 25, line 25.), wherein there is an association between at least two of the nodes, and

iii) inferring user profile information for the document using a topology of the graph and user profile information of users and of other documents (This is supported, for example, by page 25, line 26 through page 26, line 18.).

#### **VI. Grounds of Rejection to be Reviewed on Appeal**

The issues presented for review are whether:

(1) (separately patentable and argued groups of) claims 1, 7, 14, 33, 39 and 46 were properly rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement; and

(2) (separately patentable and argued groups of) claims 1, 3, 5-33 (should be 5-26 and 33), 35 and 37-66 (should be 37-58, 65 and 66) were properly rejected under 35 U.S.C. § 103(a) as being unpatentable over the Herz patent in view of the Rose patent.

#### **VII. Argument**



The appellant respectfully requests that the Board reverse the final rejection of claims 1, 3, 5-33 (should be 5-26 and 33), 35 and 37-66 (should be 37-58, 65 and 66) in view of the following.

**Rejections under 35 U.S.C. § 112**

Claims 1, 7, 14, 33, 39 and 46 (and the remaining claims by virtue of their dependency) are rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. The appellant respectfully requests that the Board reverse this ground of rejection in view of the following.

The Examiner (1) notes that claims 1, 7, 14, 33, 39 and 46 recite "controlling the serving of an advertisement to the user using the determined user profile information", and (2) alleges that this feature is not described in the specification in such a way as to enable one skilled in the art to make and use the invention because he was unable to find support for such language in the specification. (See Paper No. 20080413, page 6.) The remaining claims were rejected as depending from these rejected claims.

The appellant respectfully submits that these claims are enabled, and specifically that one skilled in the art would be able to control the serving of an advertisement to the user using the determined user profile information. In this regard, the MPEP states, in pertinent part:

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed,

contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention.

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A patent need not teach, and preferably omits, what is well known in the art.

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The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue.

(MPEP 2164.01) In this instance, the disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention. With regard to "controlling the serving of an advertisement to the user using the determined user profile information," the specification states that, "the present invention concerns **determining particularly relevant advertisements or advertisement creatives to serve** for a user request, such as a search query or document request for example. [Emphasis added.]" (Page 1, lines 6-10) The specification further states, "The present invention may involve novel methods, apparatus, message formats and/or data structures for determining user profile information and **using such determined user profile information for ad serving**. [Emphasis added.]" (Page 7, lines 8-10) The specification further states:

The ad serving operations 230 may service requests for ads from ad consumers 130. The ad serving operations 230 may

use relevancy determination operations 235 to determine candidate ads for a given request. The ad serving operations 230 may then use optimization operations 240 to select a final set of one or more of the candidate ads. The ad serving operations 230 may then use relative presentation attribute assignment operations 250 to order the presentation of the ads to be returned.

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Various aspects of the present invention may be used with relevancy determination operations 235, relative presentation attribute ordering operations 250, and/or ad serving operations 230.

(Page 12, lines 1-21) Finally, the specification states:

#### **§ 4.2.2.1 AD SCORING USING UPI**

It may be desirable to place an ad on a hosting site or page where ad's targeted UPI (and/or the UPI of the ad's landing page) matches the document UPI (e.g., the average UPI of users that have requested the document) and/or *to serve the ad to a user whose UPI matches the target UPI of the ad (and/or the UPI of the ad's landing page)*.

*With enhanced ad targeting using UPI, a score for each of a plurality of ads may be determined using at least some of the UPI of the user, the UPI of a document, the UPI of an ad landing page, and/or ad targeting UPI. At least one ad may be rank ordered, filtered, and/or selected from the plurality of ads using at least the determined scores.*

For example, an ad score may be a function of a UPI match value. Referring to Figure 5, such a UPI match value may be a function of one or more of: (i) a match

value of UPI information 514 associated with a user (or user group) 512 and UPI information 524 associated with a document (e.g., a Web page) requested (or visited) by the user 512 (Match Value 1); (ii) a match value of UPI information 514 associated with a user (or user group) 512 and UPI information 534 associated with a landing page 532 of an ad under consideration (Match Value 2); (iii) a match value of UPI information 524 associated with a document 522 requested (or visited) by a user and UPI information 534 associated with a landing page 532 of an ad under consideration (Match Value 3); (iv) a match value of UPI information 514 associated with a user (or user group) 512 and UPI ad targeting information 544 associated with an ad 542 under consideration (Match Value 4); and (v) a match value of UPI information 524 associated with a document 522 requested or being visited by a user and UPI ad targeting information 544 associated with an ad 542 under consideration (Match Value 5).

Thus, in one embodiment of the present invention, an overall match may be defined as:

$$\text{UPI MATCH} = a * \text{MATCH VALUE 1} + b * \text{MATCH VALUE 2} + c * \text{MATCH VALUE 3} + d * \text{MATCH VALUE 4} + e * \text{MATCH VALUE 5}$$

where a, b, c, d, and e are constants (e.g., a=0.025, b=0.275, c=0.3, d =0.2, and e = 0.2). Note that "a" may be set to zero since a match between a user UPI and a document UPI may be independent of how well either one matches an ad. Other functions, including polynomial or exponential functions, may be used instead.

Generally, for a good match, the user's UPI should match both the hosting page UPI, and perhaps even more importantly, match the UPI of the ad

landing page. The match between two profiles can be computed using standard Information Retrieval techniques for matching two term vectors, such as vector space matching (See, e.g., the articles: G. Salton and C. Buckley, "Term-Weighting Approaches in Automatic Text Retrieval," Information Processing and Management, 24(5), pp. 513-523 (1988); and Gerard Salton, A. Wong, C. S. Yang, "A Vector Space Model for Automatic Indexing," Communications of the ACM, 18(11), pp. 613-620 (1975).).

Broad attributes such as geography, topic, user age range, language, etc. can be computed for documents and users using, for example, machine learning classifiers. Also, that such broad attributes can be used jointly with more narrow attributes, such as words and phrases, in matching.

Naturally, the score of an ad can be a function of other factors in addition to UPI Match, such as, for example, its relevancy to a search query or to content of a document, an amount an advertiser will pay or is willing to pay for a given result (e.g., impression, selection, conversion, etc.), a measure of the ad's performance (e.g., click-through rate, conversion rate, user rating, etc.), a measure of the advertiser's quality, etc. Moreover, ***different intermediate ad scores may be used for different purposes (e.g., relevancy, position, relative rendering attribute, etc.)*** [Emphasis added.]

(Page 19, line 1 through page 20, line 30)

The foregoing examples illustrate how the serving of an advertisement might be controlled using determined user profile information (e.g., for a user or for a document). Therefore, the appellant respectfully requests that the Board reverse this ground of rejection for at least this first reason.

Further, even without the express teachings and guidance provided by the specification, the claimed "controlling the serving of an advertisement to the user using the determined user profile information" is enabled because controlling ad serving using such determined information would be well understood and predictable. In this regard, the MPEP states, "The amount of guidance or direction needed to enable the invention is inversely related to . . . the predictability in the art." (MPEP 2164.03) Therefore, the appellant respectfully requests that the Board reverse this ground of rejection for at least this second reason.

#### **Rejections under 35 U.S.C. § 103**

Claims 1, 3, 5-33 (should be 5-26 and 33), 35 and 37-66 (should be 37-58, 65 and 66) stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Herz patent in view of the Rose patent. The appellant respectfully requests that the Board reverse this ground of rejection in view of the following.

As an initial matter, the appellant would like to take issue with the two aspects of the Examiner's rejection. First, the Examiner relies on Merriam Webster's dictionary to interpret the claim terms "topology", "graph" and "node". (See Paper No. 20080413, pages 3-5.) The appellant respectfully notes that the MPEP provides that the scope of claims in patent applications is determined not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction "in light of the

specification as it would be interpreted by one of ordinary skill in the art." (MPEP 2111) More importantly, in Phillips v. AWH Corp., 75 U.S.P.Q.2d 1321 (Fed. Cir. July 12, 2005) (en banc) ("Phillips v. AWH"), the Court of Appeals for the Federal Circuit ("the CAFC") explained that extrinsic evidence such as evidence from dictionaries for example, is less significant than intrinsic evidence in determining the meaning of claim language. See, e.g., Id., at 1330. The CAFC explained:

there may be a disconnect between the patentee's responsibility to describe and claim his invention, and the dictionary editor's objective of aggregating all possible definitions for particular words.

Id. at 1332-1333. The CAFC further clarified that this problem is not limited to general dictionaries, but can also occur in technical dictionaries and treatises because:

the authors of dictionaries or treatises may simplify ideas to communicate them most effectively to the public and may thus choose a meaning that is not pertinent to the understanding of particular claim language.

Id., at 1333.

Since the specification can be used to clearly discern the meaning of the claim terms as would be understood by those of ordinary skill in the art, the appellant sees no need to use the Merriam Webster's dictionary to interpret the claim terms "topology", "graph" and "node".

Second, the Examiner *picks, chooses and combines various disclosures of the Herz patent not directly related to each*

**other** as teaching various aspects of the claimed invention. (See Paper No. 20080413, pages 7-10.) However, the Examiner has not established that the various cited elements in the Herz patent are **arranged as in the claims**.

**Group I: Claims 1, 3, 5, 6, 33, 35, 37 and 38**

Independent claims 1 and 33 are not rendered obvious by the Herz and Rose patents because these patents, either taken alone or in combination, neither teach, nor suggest, an act of (or means for) **determining initial user profile information for the user using information included in past search queries submitted to a search engine by the user, wherein such information is independent of documents returned as search results to the past search queries**. Further, one skilled in the art would not have combined these references as proposed by the Examiner.

As discussed in previous responses, the specification of the present application provides an illustrative example of how initial user profile information for a user can be determined using past search queries submitted by the user. Specifically, the specification states:

There are many alternative ways to obtain user information. For example, a score 440 for an attribute 420 and value 430 can be determined with a machine learning classifier which predicts values 430 of the UPI attributes 420 in the profile using words in queries deployed previously. For example, given the keywords related to "women's health" in previous search queries, the classifier may infer that the user is a woman with probability 0.8. Further, given that Japanese words were used in previous search queries, the classifier may infer



that the user is Japanese with probability 0.9, etc.

Page 24, lines 7-14.

The Examiner alleges that column 4, lines 58-61 of the Herz patent teaches this feature. (See Paper No. 20080413, pages 2, 7 and 8.) As used in the Herz patent, a "search profile" or a "query profile" is a collection of attributes such that a user should like target objects with a target profile with a similar set of attributes. The "search profile" for a user may be determined using target profiles of articles that the user has accessed and the relevance feedback that the user has provided. The relevance feedback (or "passive feedback") may be a function of how much of (in terms of content or time) an article the user viewed, attributes of an email reply, attributes of a purchase, etc. Thus, the Herz patent uses relevance feedback (or passive feedback) to determine what types of objects (e.g., articles) a user likes, which, in turn, is used to help filter user searches. Defining a collection of attributes that a user likes target objects to have (e.g., short and long pieces of text) based on past behavior of the user does not teach ***past search queries submitted to a search engine by the user.***

The Examiner also alleges that the Herz patent can relate a user with past search words, such as past interest in films whose review text (attribute h) contains words like "chase," "explosion," "explosions," "hero," "gripping," and "superb," citing column 10, lines 37-42. (See Paper No. 20080413, pages 8 and 9.) However, ***attributes of movie reviews*** that a user has been interested in neither teach, nor suggest, ***past search queries submitted to a search engine by the user.***

The Examiner apparently does not rely on the Rose patent to compensate for this deficiency of the Herz patent. Thus, independent claims 1 and 33 are not rendered obvious by the Herz and Rose patents for at least the foregoing reason. Since claims 3, 5 and 6 directly or indirectly depend from claim 1 and since claims 35, 37 and 38 directly or indirectly depend from claim 33, these claims are similarly not rendered obvious by the Herz and Rose patents.

**Group II: Claims 7, 13, 39 and 45**

Claims 7 and 39 are not rendered obvious by the Herz and Rose patents because these patents, either taken alone or in combination, neither teach, nor suggest, acts of (or means for) inferring user profile information for the user by (i) defining a node for each of a number of documents and the user, (ii) adding edges between nodes if there is an association between the nodes to define a graph, and (iii) **inferring user profile information for the user using a topology of the graph and user profile information of other documents.**

The Examiner refers to Figures 1 and 2 of the Herz patent, and contends that the nodes (computers) and links (communications links) teach these features. (See Paper No. 20080413, page 8.) The Examiner further argues that in the Herz patent, the information servers contain the target documents, citing column 26, line 37, and column 29, lines 1-5. (See Paper No. 20080413, page 8.) However, Figures 1 and 2 of the Herz patent show nodes and links in the context of computers that can communicate with one another over a communications network. These nodes and links are in no way

related to nodes and edges of a **graph, the topology of which is used to infer user profile information.**

The Examiner then argues that the system can link users to documents based on the users' interests in the documents or other documents associated with each link, citing column 60, lines 62-64. (See Paper No. 20080413, page 8.) This section merely concerns ranking links in a hypertext document, which are in no way related to nodes and edges of a graph, the topology of which can be used to infer user profile information.

The Examiner further argues that since the system can determine relationships between users and documents, "one skilled in the art **could** easily infer from these relationships to **create graphs,**" citing column 10, lines 46-53. (Paper No. 20080413, page 9. Emphasis added.) The appellant respectfully disagrees. First, the cited portion of the Herz patent merely discusses that a user might like movies similar to those the user has liked in the past, or might like movies liked by similar users. This has nothing to do with **inferring user profile information for the user using a topology of the graph and user profile information of other documents** as claimed. More importantly, the fact that a system "**could be**" modified is not the proper standard for showing obviousness under 35 U.S.C. § 103. The fact that graph theory defines objects with "nodes" and connections with "edges" neither teaches, nor suggests, (i) defining a node for each of a number of documents and the user, wherein each node represents a particular one of the number of documents or the user, (ii) adding edges between nodes if there is an association between the nodes to define a graph, and (iii) **inferring user profile information for the user using a topology of the graph and user profile information of other documents.**

The nodes and links in the Herz patent are described in a totally different context than recited in independent claims 7 and 39. When interpreting the terms "nodes" and "edges", the Examiner improperly ignores the specification as it would be interpreted by one of ordinary skill in the art. (Recall Phillips v. AWH Corp., discussed above.) In the instant application, the specification discusses "nodes" in terms of representing users and documents on a graph and "edges" between the user node and document nodes for the top Web pages that were returned by a search engine in response to search queries that the user submitted, and perhaps between pairs of documents that have links (e.g., hyperlinks) between them. Specifically, with reference to Figures 10 and 11, the specification states:

In one exemplary embodiment of the present invention, the association information 1070 may be **a graph in which users and documents are represented as nodes** 1072 and 1076, respectively. Figure 11 is a flow diagram of an exemplary method 1100 that may be used to associate users and/or documents in a manner consistent with the present invention. As shown, **nodes may be defined for each user and document.** (Block 1110) For each of the user nodes 1072, **edges 1074 (which indicate an association) may be drawn between the user node and document nodes for the top Web pages that were returned by a search engine in response to search queries that the user submitted.** (In a variant, the edges 1074 could be drawn only to Web pages that the user selected (e.g., clicked on)). Additionally, **edges 1078 may be drawn between pairs of documents that have links (e.g., hyperlinks) between them.** (Block 1120) Although not shown, user-to-user associations may also be generated. For example, edges may be added between users that have visited one or more of the same documents. [Emphasis added.]

Page 25, lines 4-18. Thus, using the specification, one of ordinary skill in the art at the time of the invention would interpret "nodes" and "edges" as representations of users and documents, and relationships between users and documents, on a graph.

The Examiner responds:

**Response 3:** With regard to the aspect of defining a node for each of a number of documents and the user, looking into applicant's specification, it is not clear how the work [The appellant believes "word" was intended.] **node** is being defined. For example, in paragraph 56 of the published specification, applicant used nodes alternatively with access points ("one or more areas served by common cable head end stations, one or more areas served by common network access points or nodes, etc."). In paragraph 103, nodes seems to be used to describe a point in a flow diagram ("...Acts 620 and 630 may be performed one or more times before the method 600 is left. (Node 640)") (See item 640 in Fig. 6 and item 740 in Fig. 7). In paragraph 111, "the association information 1070 may be a graph in which users and documents are represented as nodes 1072 and 1076, respectively.

(Paper No. 20080413, pages 4 and 5.) At the risk of being blunt, the appellant respectfully submits that one skilled in the art would not be confused by this fabricated uncertainty about the term "node", but rather would clearly understand how this term should be interpreted in view of the claims. For example, independent claim 7 recites, in pertinent part:

i) ***defining a node for each of a number of documents and the user,***

**wherein each node represents a particular one of the number of documents or the user** [This is supported, for example, by Figure 10, 1110 of Figure 11, and page 24, line 27 through page 25, line 25.], [and]  
ii) **adding edges between nodes** if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes [This is supported, for example, by Figure 10, 1120 of Figure 11, and page 23, line 27 through page 25, line 25.] ... [Emphasis added.]

Regardless of the Examiner's alleged confusion as to the meaning of "node", one skilled in the art would not be confused about the fact that the term "node" is not being used as meaning a network "access point" or the RETURN node in a flow chart!

Furthermore, the Examiner argues that acts that are conditionally performed are not given weight since they need not be performed if the condition is not met. (See, e.g., Paper No. 20080413, page 9.) As the appellant previously noted to the Examiner, claims 7-12 and 39-44 (claims 8-12 and 40-44 are separately argued later) had been amended to recite that the condition is met (in which case the conditional act is performed). Therefore, the Examiner should have given (and the Board should give) such elements of these claims patentable weight.

Moreover, although the Examiner apparently argues, on the one hand, that the information servers of the Herz patent contain documents to which the user can be linked, and that one could infer a graph from purported relationships between users and other users or users and documents, the Examiner later concedes that the Herz patent does not describe a node

that represents a document or users. (See Paper No. 20080413, page 10.) In an attempt to compensate for this admitted deficiency of the Herz patent, the Examiner relies on the Rose patent. In particular, the Examiner contends that the Rose patent teaches various concepts concerning users and documents. (See Paper No. 20080413, pages 5, 10 and 11.) However, the appellant respectfully notes that the cited portions of the Rose patent concern the notions of "term frequency" and "inverse document frequency" (TF/IDF), state that users and documents can be represented with a term vector, state that a user's profile vector may be updated, and state that similarities between term vectors can be determined using a cosine distance. (See column 6, lines 9-17, 28-35 and 55-60 of the Rose patent, cited by the Examiner.) The appellant frankly does not see how the cited sections of the Rose patent compensate for the conceded deficiency of the Herz patent. That is, the appellant cannot see how the cited portions of the Rose patent discussed above, which concern term vectors, teach a node (of a graph) representing documents or users. The appellant notes that Figures 5A and 5B of the Rose patent (cited by the Examiner) merely illustrate the notion of cosine distance between feature vectors. They do not teach, nor do they suggest, a graph including nodes, some of which are connected.

The Examiner also notes that "the table in figure 6 of Rose shows on the Y axis the different documents and the X axis the different users associated with these documents," and concludes, "Therefore, once these relationships are established it would have been obvious for one skilled [in the] art at the time of applicant's invention to draw lines or edges between the documents that are associated with particular users." (Paper No. 20080413, pages 5 and 11.) The

appellant respectfully disagrees, and respectfully notes that even if the Rose patent were modified as proposed by the Examiner, such a modification would still neither teach, nor make obvious, inferring user profile information for the user using a topology of the graph and user profile information **of other documents** as claimed. More specifically, referring to the table of Figure 6, the Rose patent states:

Using the information in this table, a correlation matrix R can be generated, whose entries **indicate the degree of correlation between the various users' interests** in commonly retrieved messages. More precisely, element  $R_{ij}$  contains a measure of **correlation between the i-th user and the j-th user**. One example of such a matrix is the correlation matrix illustrated at 44 in FIG. 6. [Emphasis added.]

(Column 6, line 67 through column 7, line 6 of the Rose patent.) Again, determining a degree of correlation **between various users**, neither teaches, nor makes obvious, inferring user profile information for the user using a topology of the graph and user profile information **of other documents** as claimed. The Examiner also alleges that column 79, lines 8-10 of the Herz patent teaches this feature. (See Paper No. 20080413, page 5.) The appellant assumes that the Examiner provided an erroneous citation since the cited portion of the Herz patent merely states "automatically generating at least one user target profile interest summary for a user at a user terminal, each of said user target profile interest summary being indicative of ones of said target objects and sets of target object characteristics accessed by said user" as an



element of claim 1, which has nothing to do with the claimed feature discussed above.

Finally, the Examiner concludes, without any substantiation, that it would have been obvious for one skilled in the art at the time of the invention to have a system that has "graphical representation of users and/or document[s]. The motivation for one skilled to use graph would be to establish relationships between the user and/or document." (Paper No. 20080413, page 11.) Frankly, the Examiner has not shown any support in the Herz and Rose patents to support this assertion, nor has the Examiner proffered any obvious reason to modify these patents as he proposes.

Thus, independent claims 7 and 39 are not rendered obvious by the Herz and Rose patents for at least the foregoing reasons. Since claims 13 and 45 depend from claims 7 and 39, respectively, these claims are similarly not rendered obvious by the Herz and Rose patents.

**Group III: Claims 8 and 40**

First, since claims 8 and 40 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group II.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node,*** and that (wherein) ***at least one document corresponding to the first node was returned in a search results page to a search***

**query from the user corresponding to the second node.**

Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group IV: Claims 9 and 41**

First, since claims 9 and 41 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group II.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was selected by the user corresponding to the second node***, and that (wherein) ***at least one document corresponding to the first node was selected by the user corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group V: Claims 10 and 42**

First, since claims 10 and 42 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group II.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node is linked with a document corresponding to the second node***, and that (wherein) ***at least one document corresponding to the first node is linked with at least one document corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group VI: Claims 11 and 43**

First, since claims 11 and 43 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group II.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was visited by a set of users that have visited another document corresponding to the second node***, and that

(wherein) **at least one document corresponding to the first node was visited by a set of users that have visited at least one other document corresponding to the second node.** Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group VII: Claims 12 and 44**

First, since claims 12 and 44 depend from claims 7 and 39, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group II.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes **if a user corresponding to the first node visited a set of one or more documents also visited by another user corresponding to the second node**, and that (wherein) **the user corresponding to the first node visited a set of one or more documents also visited by the other user corresponding to the second node.** Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group VIII: Claims 14-19 and 46-51**

Independent claims 14 and 46 are not rendered obvious by the Herz and Rose patents because these patents do not teach acts of (or means for) **determining user profile information for a document** using both initial user profile information and inferred user profile information, **associating with the document, the determined user profile information for the document**, and storing the association of the document with the determined user profile information for the document. As indicated by Figure 5 of the present application, user profile information 524 may be associated with a document 522 (and other user profile information 514, 534 and 544 may be associated with other things 512, 532 and 542).

The Examiner cites column 10, lines 43-46 of the Herz patent as teaching recording associations between documents (movies) and users. (See Paper No. 20080413, page 9.) Although movies can have attributes including a "list of customers who have previously rented this movie" (See, e.g., column 10, lines 22 and 23.), such a list is not "user profile information for a document", which is associated with the document, and which association is stored, as recited in claims 14 and 46.

Thus, independent claims 14 and 46 are not rendered obvious by the Herz and Rose patents for at least the foregoing reason. Since claims 15-26 and 65 directly or indirectly depend from claim 14 and since claims 47-58 and 66 directly or indirectly depend from claim 46, these claims are similarly not rendered obvious by the Herz and Rose patents.

Furthermore, the Examiner argues that acts that are conditionally performed are not given weight since they need

not be performed if the condition is not met. (See, e.g., Paper No. 20080413, page 9.) The appellant notes that claims 20-25 and 52-57 (which are separately argued later) have been amended to recite that the condition is met (in which case the conditional act is performed). Therefore, the Examiner must give such elements of these claims patentable weight.

**Group IX: Claims 20 and 52**

First, since claims 20 and 52 depend from claims 14 and 46, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group VIII.

Second, these claims further recite that the act of (or means for) inferring user profile information for the document includes (means for) (i) defining a node for each of a number of documents and for each of a number of users, wherein each node represents a particular one of the number of documents or a particular one of the number of users, (ii) adding edges between nodes if there is an association between the nodes to define a graph, wherein there is an association between at least two of the nodes, and (iii) inferring user profile information for the document using a topology of the graph and user profile information of users and of other documents. As discussed above with reference to the claims of Group II, the Herz and Rose patents do not teach or make obvious **inferring user profile information for a user** in this way. The Herz and Rose patents similarly do not teach or make obvious **inferring user profile information for a document** in this way. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group X: Claims 21 and 53**

First, since claims 21 and 53 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group IX.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node,*** and that (wherein) ***at least one document corresponding to the first node was returned in a search results page to a search query from the user corresponding to the second node.***

Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group XI: Claims 22 and 54**

First, since claims 22 and 54 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group IX.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes ***if a document corresponding to***

*the first node was selected by the user corresponding to the second node, and that (wherein) at least one document corresponding to the first node was selected by the user corresponding to the second node.* Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group XII: Claims 23 and 55**

First, since claims 23 and 55 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group IX.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes *if a document corresponding to the first node is linked with a document corresponding to the second node, and that (wherein) at least one document corresponding to the first node is linked with at least one document corresponding to the second node.* Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not



rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group XIII: Claims 24 and 56**

First, since claims 24 and 56 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group IX.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes ***if a document corresponding to the first node was visited by a set of users that have visited another document corresponding to the second node***, and that (wherein) ***at least one document corresponding to the first node was visited by a set of users that have visited at least one other document corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group XIV: Claims 25 and 57**

First, since claims 25 and 57 depend from claims 20 and 52, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group IX.

Second, these claims further recite that (wherein) an edge is added (or means for adding an edge adds an edge) between first and second nodes ***if a user corresponding to the first node visited a set of one or more documents also visited by another user corresponding to the second node***, and that (wherein) ***the user corresponding to the first node visited a set of one or more documents also visited by the other user corresponding to the second node***. Although the Examiner does not expressly address these claims, he does seem to argue that this type of "limitation does not have to happen, and can be interpreted as such[.]" (See Paper No. 20080413, page 9.) The appellant respectfully disagrees since the second wherein clauses of these claims recite that the condition does in fact occur. Thus, these claims are not rendered obvious by the Herz and Rose patents for at least this additional reason.

**Group XV: Claims 65 and 66**

First, since claims 65 and 66 depend from claims 14 and 46, respectively, these claims are not rendered obvious by the Herz and Rose patents for at least the reasons discussed above with reference to the claims of Group VIII.

Second, these claims further recite that the determined user profile information is associated with the document, not with a user. This feature, which was apparently not specifically addressed by the Examiner, further distinguishes these claims over the Herz and Rose patents.

**XIII. Claims appendix**

An appendix containing a copy of the claims on appeal is filed herewith.

**IX. Evidence appendix**

There is no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132, nor is there any other evidence entered by the Examiner and relied upon by the appellant in the appeal.

**X. Related proceedings appendix**

There are no decisions rendered by a court of the Board in any proceeding identified in section II above pursuant to 37 C.F.R. § 41.38 (c) (1) (ii).

**Conclusion**

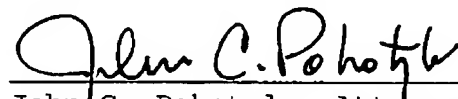
In view of the foregoing, the appellant respectfully submits that the pending claims are in condition for allowance. Accordingly, the appellant requests that the Board reverse each of the outstanding grounds of rejection.

Any arguments made in this Appeal Brief pertain **only** to the specific aspects of the invention **claimed**. Any arguments are made **without prejudice to, or disclaimer of**, the appellant's right to seek patent protection of any unclaimed (e.g., narrower, broader, different) subject matter, such as by way of a continuation or divisional patent application for example.

Since the appellant's remarks, amendments, and/or filings with respect to the Examiner's objections and/or rejections are sufficient to overcome these objections and/or rejections, the appellant's silence as to assertions by the Examiner in the Office Action and/or to certain facts or conclusions that may be implied by objections and/or rejections in the Office Action (such as, for example, whether a reference constitutes prior art, whether references have been properly combined or modified, whether dependent claims are separately patentable, etc.) is not a concession by the appellant that such assertions and/or implications are accurate, and that all requirements for an objection and/or a rejection have been met. Thus, the appellant reserves the right to analyze and dispute any such assertions and implications in the future.

Respectfully submitted,

December 17, 2008

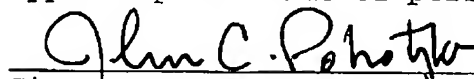
  
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**CERTIFICATE OF FACSIMILE TRANSMISSION**

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Signature

December 17, 2008

Date

**CLAIMS APPENDIX PURSUANT TO  
37 C.F.R. § 41.37 (c) (1) (viii)**

1 Claim 1 (previously presented): A computer-implemented  
2 method for determining user profile information for a user,  
3 the computer-implemented method comprising:  
4 a) determining initial user profile information for  
5 the user using information included in past search  
6 queries submitted to a search engine by the user,  
7 wherein such information is independent of documents  
8 returned as search results to the past search queries;  
9 b) inferring user profile information for the user;  
10 c) determining the user profile information for the  
11 user using both the initial user profile information  
12 and the inferred user profile information; and  
13 d) controlling the serving of an advertisement to the  
14 user using the determined user profile information.

Claim 2 (canceled)

1 Claim 3 (previously presented): The computer-implemented  
2 method of claim 1 wherein the act of determining an initial  
3 user profile information for the user further uses past  
4 document selections by the user.

Claim 4 (canceled)

1 Claim 5 (previously presented): The computer-implemented  
2 method of claim 1 wherein the initial user profile includes  
3 a plurality of attributes, each of the plurality of  
4 attributes having a value and a score.

1 Claim 6 (previously presented): The computer-implemented  
2 method of claim 5 wherein the score indicates a likelihood  
3 that the value of the attribute is correct.

1 Claim 7 (previously presented): A computer-implemented  
2 method for determining user profile information for a user,  
3 the computer-implemented method comprising:  
4 a) determining initial user profile information for  
5 the user;  
6 b) inferring user profile information for the user;  
7 c) determining the user profile information for the  
8 user using both the initial user profile information  
9 and the inferred user profile information; and  
10 d) controlling the serving of an advertisement to the  
11 user using the determined user profile information,  
12 wherein the act of inferring user profile  
13 information for the user includes  
14 i) defining a node for each of a number of  
15 documents and the user, wherein each node  
16 represents a particular one of the number of  
17 documents or the user,  
18 ii) adding edges between nodes if there is an  
19 association between the nodes to define a graph,  
20 wherein there is an association between at least  
21 two of the nodes, and  
22 iii) inferring user profile information for the  
23 user using a topology of the graph and user  
24 profile information of other documents.

1 Claim 8 (previously presented): The computer-implemented  
2 method of claim 7 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first

4 node was returned in a search results page to a search  
5 query from the user corresponding to the second node, and  
6 wherein at least one document corresponding to the first  
7 node was returned in a search results page to a search  
8 query from the user corresponding to the second node.

1 Claim 9 (previously presented): The computer-implemented  
2 method of claim 7 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node was selected by the user corresponding to the second  
5 node, and wherein at least one document corresponding to  
6 the first node was selected by the user corresponding to  
7 the second node.

1 Claim 10 (previously presented): The computer-implemented  
2 method of claim 7 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node is linked with a document corresponding to the second  
5 node, and wherein at least one document corresponding to  
6 the first node is linked with at least one document  
7 corresponding to the second node.

1 Claim 11 (previously presented): The computer-implemented  
2 method of claim 7 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node was visited by a set of users that have visited  
5 another document corresponding to the second node, and  
6 wherein at least one document corresponding to the first  
7 node was visited by a set of users that have visited at  
8 least one other document corresponding to the second node.

1 Claim 12 (previously presented): The computer-implemented  
2 method of claim 7 wherein an edge is added between first  
3 and second nodes if a user corresponding to the first node  
4 visited a set of one or more documents also visited by  
5 another user corresponding to the second node, and wherein  
6 the user corresponding to the first node visited a set of  
7 one or more documents also visited by the other user  
8 corresponding to the second node.

1 Claim 13 (previously presented): The computer-implemented  
2 method of claim 7 wherein the act of inferring user profile  
3 information for the user using a topology of the graph  
4 includes  
5 i) multiplying the initial user profile  
6 information of the user by a first value to  
7 generate a first product;  
8 ii) multiplying user profile information of  
9 neighboring graph nodes by a second value to  
10 generate a second product; and  
11 iii) adding the first product and the second  
12 product.

1 Claim 14 (previously presented): A computer-implemented  
2 method for determining user profile information for a  
3 document, the computer-implemented method comprising:  
4 a) determining initial user profile information for  
5 the document;  
6 b) inferring user profile information for the  
7 document;  
8 c) determining the user profile information for the  
9 document using both the initial user profile  
10 information and the inferred user profile information;



11 d) associating with the document, the determined user  
12 profile information for the document;  
13 e) storing the association of the document with the  
14 determined user profile information for the document;  
15 and  
16 f) controlling the serving of an advertisement with  
17 the document using the determined user profile  
18 information for the document stored in association  
19 with the document.

1 Claim 15 (previously presented): The computer-implemented  
2 method of claim 14 wherein the act of determining an  
3 initial user profile information for the document uses  
4 content information from the document.

1 Claim 16 (previously presented): The computer-implemented  
2 method of claim 14 wherein the act of determining initial  
3 user profile information for the document uses document  
4 meta information.

1 Claim 17 (previously presented): The computer-implemented  
2 method of claim 14 wherein the act of determining initial  
3 user profile information for the document uses (i) content  
4 information from the document, and (ii) document meta  
5 information.

1 Claim 18 (previously presented): The computer-implemented  
2 method of claim 14 wherein the initial user profile  
3 information includes a plurality of attributes, each of the  
4 plurality of attributes having a value and a score.

1 Claim 19 (previously presented): The computer-implemented  
2 method of claim 18 wherein the score indicates a likelihood  
3 that the value of the attribute is correct.

1 Claim 20 (previously presented): The computer-implemented  
2 method of claim 14 wherein the act of inferring user  
3 profile information for the document includes  
4 i) defining a node for each of a number of  
5 documents and for each of a number of users,  
6 wherein each node represents a particular one of  
7 the number of documents or a particular one of  
8 the number of users,  
9 ii) adding edges between nodes if there is an  
10 association between the nodes to define a graph,  
11 wherein there is an association between at least  
12 two of the nodes, and  
13 iii) inferring user profile information for the  
14 document using a topology of the graph and user  
15 profile information of users and of other  
16 documents.

1 Claim 21 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node was returned in a search results page to a search  
5 query from the user corresponding to the second node, and  
6 wherein at least one document corresponding to the first  
7 node was returned in a search results page to a search  
8 query from the user corresponding to the second node.

1 Claim 22 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first

3 and second nodes if a document corresponding to the first  
4 node was selected by the user corresponding to the second  
5 node, and wherein at least one document corresponding to  
6 the first node was selected by the user corresponding to  
7 the second node.

1 Claim 23 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node is linked with a document corresponding to the second  
5 node, and wherein at least one document corresponding to  
6 the first node is linked with at least one document  
7 corresponding to the second node.

1 Claim 24 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a document corresponding to the first  
4 node was visited by a set of users that have visited  
5 another document corresponding to the second node, and  
6 wherein at least one document corresponding to the first  
7 node was visited by a set of users that have visited at  
8 least one other document corresponding to the second node.

1 Claim 25 (previously presented): The computer-implemented  
2 method of claim 20 wherein an edge is added between first  
3 and second nodes if a user corresponding to the first node  
4 visited a set of one or more documents also visited by  
5 another user corresponding to the second node, and wherein  
6 the user corresponding to the first node visited a set of  
7 one or more documents also visited by the other user  
8 corresponding to the second node.

1 Claim 26 (previously presented): The computer-implemented  
2 method of claim 20 wherein the act of inferring user  
3 profile information for the document using a topology of  
4 the graph includes  
5 i) multiplying the initial user profile  
6 information of the document by a first value to  
7 generate a first product;  
8 ii) multiplying user profile information of  
9 neighboring graph nodes by a second value to  
10 generate a second product; and  
11 iii) adding the first product and the second  
12 product.

Claims 27-32 (canceled)

1 Claim 33 (previously presented): Apparatus for determining  
2 user profile information for a user, the apparatus  
3 comprising:  
4 a) means for determining initial user profile  
5 information for the user using information included in  
6 past search queries submitted by the user, wherein  
7 such information is independent of documents returned  
8 as search results to the past search queries;  
9 b) means for inferring user profile information for  
10 the user;  
11 c) means for determining the user profile information  
12 for the user using both the initial user profile  
13 information and the inferred user profile information;  
14 and  
15 d) means for controlling the serving of an  
16 advertisement to the user using the determined user  
17 profile information.

Claim 34 (canceled)

1 Claim 35 (previously presented): The apparatus of claim 33  
2 wherein the means for determining an initial user profile  
3 information for the user further use past document  
4 selections by the user.

Claim 36 (canceled)

1 Claim 37 (original): The apparatus of claim 33 wherein the  
2 initial user profile includes a plurality of attributes,  
3 each of the plurality of attributes having a value and a  
4 score.

1 Claim 38 (original): The apparatus of claim 37 wherein the  
2 score indicates a likelihood that the value of the  
3 attribute is correct.

1 Claim 39 (previously presented): Apparatus for determining  
2 user profile information for a user, the apparatus  
3 comprising:  
4 a) means for determining initial user profile  
5 information for the user;  
6 b) means for inferring user profile information for  
7 the user;  
8 c) means for determining the user profile information  
9 for the user using both the initial user profile  
10 information and the inferred user profile information;  
11 and  
12 d) means for controlling the serving of an  
13 advertisement to the user using the determined user  
14 profile information,

15        wherein the means for inferring user profile  
16 information for the user include means for  
17        i) defining a node for each of a number of  
18 documents and the user, wherein each node  
19 represents a particular one of the number of  
20 documents or the user,  
21        ii) adding edges between nodes if there is an  
22 association between the nodes to define a graph,  
23 wherein there is an association between at least  
24 two of the nodes, and  
25        iii) inferring user profile information for the  
26 user using a topology of the graph and user  
27 profile information of other documents.

1 Claim 40 (previously presented): The apparatus of claim 39  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a document corresponding to the  
4 first node was returned in a search results page to a  
5 search query from the user corresponding to the second  
6 node, and wherein at least one document corresponding to  
7 the first node was returned in a search results page to a  
8 search query from the user corresponding to the second  
9 node.

1 Claim 41 (previously presented): The apparatus of claim 39  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a document corresponding to the  
4 first node was selected by the user corresponding to the  
5 second node, and wherein at least one document  
6 corresponding to the first node was selected by the user  
7 corresponding to the second node.

1 Claim 42 (previously presented): The apparatus of claim 39  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a document corresponding to the  
4 first node is linked with a document corresponding to the  
5 second node, and wherein at least one document  
6 corresponding to the first node is linked with at least one  
7 document corresponding to the second node.

1 Claim 43 (previously presented): The apparatus of claim 39  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a document corresponding to the  
4 first node was visited by a set of users that have visited  
5 another document corresponding to the second node, and  
6 wherein at least one document corresponding to the first  
7 node was visited by a set of users that have visited at  
8 least one other document corresponding to the second node.

1 Claim 44 (previously presented): The apparatus of claim 39  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a user corresponding to the first  
4 node visited a set of one or more documents also visited by  
5 another user corresponding to the second node, and wherein  
6 the user corresponding to the first node visited a set of  
7 one or more documents also visited by the other user  
8 corresponding to the second node.

1 Claim 45 (original): The apparatus of claim 39 wherein the  
2 means for inferring user profile information for the user  
3 using a topology of the graph include means for  
4 i) multiplying the initial user profile  
5 information of the user by a first value to  
6 generate a first product;

7           ii) multiplying user profile information of  
8           neighboring graph nodes by a second value to  
9           generate a second product; and  
10          iii) adding the first product and the second  
11          product.

1   Claim 46 (previously presented): Apparatus for determining  
2   user profile information for a document, the apparatus  
3   comprising:

4       a) means for determining initial user profile  
5       information for the document;  
6       b) means for inferring user profile information for  
7       the document;  
8       c) means for determining the user profile information  
9       for the document using both the initial user profile  
10       information and the inferred user profile information;  
11       d) means for associating with the document, the  
12       determined user profile information for the document;  
13       e) means for storing the association of the document  
14       with the determined user profile information for the  
15       document; and  
16       f) means for controlling the serving of an  
17       advertisement with the document using the determined  
18       user profile information for the document stored in  
19       association with the document.

1   Claim 47 (original): The apparatus of claim 46 wherein the  
2   means for determining an initial user profile information  
3   for the document use content information from the document.



1 Claim 48 (original): The apparatus of claim 46 wherein the  
2 means for determining initial user profile information for  
3 the document use document meta information.

1 Claim 49 (original): The apparatus of claim 46 wherein the  
2 means for determining initial user profile information for  
3 the document use (i) content information from the document,  
4 and (ii) document meta information.

1 Claim 50 (original): The apparatus of claim 46 wherein the  
2 initial user profile information includes a plurality of  
3 attributes, each of the plurality of attributes having a  
4 value and a score.

1 Claim 51 (original): The apparatus of claim 50 wherein the  
2 score indicates a likelihood that the value of the  
3 attribute is correct.

1 Claim 52 (previously presented): The apparatus of claim 46  
2 wherein the means for inferring user profile information  
3 for the document include means for  
4 i) defining a node for each of a number of  
5 documents and for each of a number of users,  
6 ii) adding edges between nodes if there is an  
7 association between the nodes to define a graph,  
8 wherein there is an association between at least  
9 two of the nodes, and  
10 iii) inferring user profile information for the  
11 document using a topology of the graph and user  
12 profile information of users and of other  
13 documents.

1 Claim 53 (previously presented): The apparatus of claim 52  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a document corresponding to the  
4 first node was returned in a search results page to a  
5 search query from the user corresponding to the second  
6 node, and wherein at least one document corresponding to  
7 the first node was returned in a search results page to a  
8 search query from the user corresponding to the second  
9 node.

1 Claim 54 (previously presented): The apparatus of claim 52  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a document corresponding to the  
4 first node was selected by the user corresponding to the  
5 second node, and wherein at least one document  
6 corresponding to the first node was selected by the user  
7 corresponding to the second node.

1 Claim 55 (previously presented): The apparatus of claim 52  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a document corresponding to the  
4 first node is linked with a document corresponding to the  
5 second node, and wherein at least one document  
6 corresponding to the first node is linked with at least one  
7 document corresponding to the second node.

1 Claim 56 (previously presented): The apparatus of claim 52  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a document corresponding to the  
4 first node was visited by a set of users that have visited  
5 another document corresponding to the second node, and  
6 wherein at least one document corresponding to the first

7 node was visited by a set of users that have visited at  
8 least one other document corresponding to the second node.

1 Claim 57 (previously presented): The apparatus of claim 52  
2 wherein the means for adding edges adds an edge between  
3 first and second nodes if a user corresponding to the first  
4 node visited a set of one or more documents also visited by  
5 another user corresponding to the second node, and wherein  
6 the user corresponding to the first node visited a set of  
7 one or more documents also visited by the other user  
8 corresponding to the second node.

1 Claim 58 (original): The apparatus of claim 52 wherein the  
2 means for inferring user profile information for the  
3 document using a topology of the graph include means for  
4 i) multiplying the initial user profile  
5 information of the document by a first value to  
6 generate a first product;  
7 ii) multiplying user profile information of  
8 neighboring graph nodes by a second value to  
9 generate a second product; and  
10 iii) adding the first product and the second  
11 product.

Claims 59-64 (canceled)

1 Claim 65 (previously presented): The computer-implemented  
2 method of claim 14 wherein the determined user profile  
3 information is associated with the document, not with a  
4 user.

- 1 Claim 66 (previously presented): The apparatus of claim 46
- 2 wherein the determined user profile information is
- 3 associated with the document, not with a user.

Claims 67-76(canceled)

**EVIDENCE APPENDIX PURSUANT TO  
37 C.F.R. § 41.37 (c) (1) (ix)**

There is no evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132, nor is there any other evidence entered by the Examiner and relied upon by the appellant in the appeal.

**RELATED PROCEEDINGS APPENDIX PURSUANT  
TO 37 C.F.R. § 41.37 (c) (1) (x)**

There are no decisions rendered by a court of the Board in any proceeding identified in section II of the Appeal Brief pursuant to 37 C.F.R. § 41.37 (c) (1) (ii).